

Time: 3 Hours

Subject: Computer Networks

Max. Marks: 70

- Note:** (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. a) Define types of Data flow: simplex, half-duplex and full-duplex.
b) Write any three differences between synchronous and Asynchronous transmission.
c) Define error and mention types of errors.
d) Explain concept of sliding window.
e) What is the concept of Tunneling?
f) Write short notes on SCTP.
g) Name some network security attacks.
2. a) Describe guided and unguided Transmission Media in detail.
b) Explain Wireless LAN with its architecture. Also mention its advantages and disadvantages.
3. a) Explain the various techniques used for error detection and correction at the Data Link Layer.
b) Compare and contrast Stop-and-Wait ARQ, Go-Back-N ARQ, and Selective Repeat ARQ with suitable diagrams and examples.
4. a) What is logical addressing? Show IPv4 header format and mention all its fields in detail.
b) Write short notes on:
(i) ARP (ii) RARP (iii) BOOTP (iv) DHCP
5. a) Write a detailed note on Gateway Protocols. How do they support internetworking across different autonomous systems?
b) Explain transport layer protocols TCP and UDP with their segment formats.
6. a) Compare and contrast DES and RSA encryption algorithms with its advantages and disadvantages.
b) Describe the structure and functioning of the Domain Name System (DNS). How does DNS resolution work from the user query to obtaining the IP address?
7. a) Explain the role of firewalls in network security.
b) Explain Distance-vector routing algorithm with an example.
